



A Vector Error Correction Model (VECM) Investigation on Islamic Monetary Policy on Indonesia's Economic Growth

Nusa Dewa Harsoyo^{a,1}, Fitri Novita Wulansari^{b,2,*}, Ahmad Suminto^{c,3}, Galih Aisia^{d,4}

^{a,b,c,d} Faculty of Economics and Management, University of Darussalam Gontor, Ponorogo
Jl. Raya Siman, Demangan, Kec. Siman, Kabupaten Ponorogo, Jawa Timur, Indonesia 63471

¹ fnairin22@gmail.com

*Corresponding Author

ARTICLE INFO:

Sejarah Artikel:

Received: 20 January 2025

Revised: 15 February 2026

Published: 31 March 2026

Keywords:

Islamic Monetary Policy; VECM;
Economic Growth; Gross Domestic
Product (GDP); FASBIS.

Kata Kunci:

Kebijakan Moneter Islam; VECM;
Pertumbuhan Ekonomi; Produk
Domestik Bruto; FASBIS.

ABSTRACT

Sharia monetary policy is regulated to increase effectiveness in responding to economic developments, particularly in the monetary sector. Indonesia, as a country that implements a dual monetary system, plays a role in balancing the mechanisms of monetary operations and their impact on national economic development. The purpose of this study is to examine the impact of Islamic monetary policy on Indonesia's economic growth from 2020 to 2024. This research uses a quantitative approach with Vector Error Correction Model (VECM) analysis estimation model with the Gross Domestic Product (GDP) as the dependent variable. Sharia Open Market Operation (OPTS), Sharia Indonesian Bank Deposit Facilities (FASBIS) and Sharia Open Market Operation (PUAS) of Islamic monetary policy as independent variables. The results of this study show that the variables that influence GDP are OPTS which is significantly negative and FASBIS which is significantly positive in the long term, while all variables have no effect in the short term. Further research on this topic is recommended to extend the observation period and use other analysis techniques to overcome the limitations of this study in terms of sensitivity to data volume and lag. This study contributes to Islamic monetary economics by showing that Islamic monetary instruments have stronger long-term than short-term effects on economic growth. FASBIS and Sharia Open Market Operations significantly influence GDP, while PUAS has limited impact. Practically, the findings support Bank Indonesia and Islamic banks in optimizing liquidity management and strengthening Islamic monetary policy effectiveness for sustainable economic growth.

ABSTRAK

Kebijakan moneter Syariah diatur untuk meningkatkan efektivitas dalam merespons perkembangan ekonomi, khususnya di sektor moneter. Indonesia, sebagai negara yang menerapkan sistem moneter ganda, berperan dalam menyeimbangkan mekanisme operasi moneter dan dampaknya terhadap perkembangan ekonomi nasional. Tujuan penelitian ini adalah untuk menganalisis dampak kebijakan moneter syariah terhadap pertumbuhan ekonomi Indonesia dari tahun 2020 hingga 2024. Penelitian ini menggunakan pendekatan kuantitatif dengan model estimasi Vector Error Correction Model (VECM) dengan Produk Domestik Bruto (PDB) sebagai variabel dependen. Operasi Pasar Terbuka Syariah (OPTS), Fasilitas Simpanan Bank Indonesia Syariah (FASBIS), dan Operasi Pasar Terbuka Syariah (PUAS) sebagai variabel independen dari kebijakan moneter syariah. Hasil penelitian ini menunjukkan bahwa variabel yang mempengaruhi PDB adalah OPTS yang secara signifikan negatif dan FASBIS yang secara signifikan positif dalam jangka panjang, sementara semua variabel tidak memiliki pengaruh dalam jangka pendek. Penelitian lebih lanjut pada topik ini disarankan untuk memperpanjang periode pengamatan dan menggunakan teknik analisis lain untuk mengatasi batasan penelitian ini terkait sensitivitas terhadap volume data dan lag.



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/).

How to cite: Harsoyo, N. D., Wulansari, F. N., Suminto, A., & Aisia, G., (2026). A Vector Error Correction Model (VECM) Investigation on Islamic Monetary Policy on Indonesia's Economic Growth. *Iqtishodia: Jurnal Ekonomi Syariah*, 11(1), 43-54. doi: <https://doi.org/10.35897/iqtishodia.v11i1.2390>

INTRODUCTION

Economic stability and growth in a dual financial system are determined not only by the effectiveness of conventional monetary policy, but also by the extent to which Islamic monetary instruments are able to function as an effective policy transmission mechanism et al., (2024). In Indonesia, strengthening the role of Islamic monetary instruments is becoming increasingly relevant as the contribution of the Islamic economy to the Gross Domestic Product (GDP) increases and Bank Indonesia commits to developing an inclusive monetary policy framework.

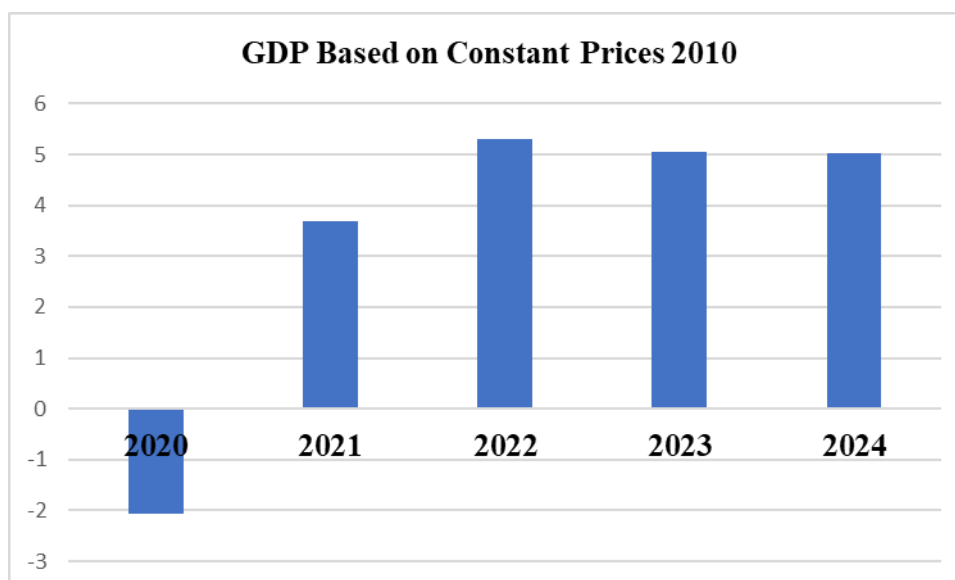


Figure 1. Gross Domestic Product Indonesia 2020 - 2024

Source: BPS Statistic Data 2020-2024 (processed by the author)

The 2020–2024 period was marked by significant economic pressure due to the COVID-19 pandemic, global geopolitical uncertainty, and commodity price volatility, which required monetary policy to not only maintain price stability but also support economic recovery and growth (Rahayu, Zaini, & Madura, 2024). In this context, Islamic monetary instruments such as Sharia Open Market Operations (OPTS), Bank Indonesia Sharia Deposit Facility (FASBIS), and Sharia Interbank Money Market (PUAS) play a strategic role in managing Islamic banking liquidity and overall financial system stability.

Although various studies have examined the relationship between monetary policy and economic growth, empirical studies that specifically analyse the effectiveness of Islamic monetary instruments within the framework of a dual financial system, particularly by distinguishing between short-term and long-term effects, are still relatively limited and show mixed results. Research by found that Islamic monetary instruments have not functioned optimally as a policy transmission channel, while research by Asbarini, et al., (2022), Khoirurizki et al., (2024), Marpaung, et al., (2024), Octaviani & Al Arif (2018), Pane, et al., (2024); Prasetya, et. al., (2021), Zeen, et al., (2022; Wahid), Jamel, et al., (2020); Setiawan & Karsinah (2018) shows the

potential for significant contributions in the long term. The inconsistency of these findings indicates a research gap that needs to be further explored, particularly during periods of crisis and post-crisis. Based on these conditions, this study aims to analyse the effect of OPTS, FASBIS, and PUAS on Indonesia's economic growth, which is proxied by Gross Domestic Product at constant prices during the period 2020–2024. This study uses a quantitative approach with the Vector Error Correction Model (VECM) method to capture dynamic relationships and distinguish between the short-term and long-term effects of variables.

This study contributes empirical evidence on the effectiveness of Islamic monetary instruments in supporting national economic growth during periods of economic uncertainty, while enriching the literature on Islamic monetary policy in the context of a dual financial system. The originality and novelty of this study lie in its comprehensive analysis of Islamic monetary instruments within Indonesia's dual financial system during the crisis and post-pandemic recovery period of 2020–2024. Unlike previous studies that generally examine Islamic monetary policy partially or without distinguishing time horizons, this research simultaneously analyses the dynamic effects of Sharia Open Market Operations (OPTS), Bank Indonesia Sharia Deposit Facility (FASBIS), and Sharia Interbank Money Market (PUAS) on economic growth using the VECM approach. The study's novelty is also reflected in its focus on differentiating short-term and long-term transmission effects of Islamic monetary instruments under conditions of economic uncertainty, thereby providing more updated empirical evidence for the development of Islamic monetary policy in Indonesia. The findings of this study are expected to serve as a basis for Bank Indonesia in formulating more effective Islamic monetary policies oriented towards stability and sustainable economic growth.

LITERATURE REVIEW

Islamic Open market Operations

According to (Kaila Zulfa Khoirurrizki et al., 2024) Open market operations are government policies in coordinating the money supply through the sale and purchase of government securities. In monetary policy, the welfare of a country can be measured by economic growth, Price stability and balance of payments can be assessed through gross domestic product (GDP). In pursuing these objectives, Bank Indonesia, as the central bank, prioritizes maintaining price stability while simultaneously promoting sustainable long-term economic growth.

Sharia Open Market Operation refer to money market transactions carried out by Bank Indonesia with banks or by other financial institutions operating in compliance with Sharia principles. The primary goal of these operations is to regulate market liquidity through Sharia-compliant instruments such as Bank Indonesia Sukuk (Syarifuddin & Sakti, 2021). Unlike conventional practices, this mechanism excludes interest and instead operates based on sale and purchase (*murabahah*) or profit-sharing (*mudharabah*) principles (Mawi, 2017). This transaction is carried out periodically however, in certain situations, it can be carried out at any time through the Fine Tune Operation (FTO) mechanism. This process is executed either through an auction or a nonauction mechanism, depending on the existing market conditions (Mamad, 2020; Nasir & Khomariyah, 2020).

To stabilize money market liquidity conditions central banks, employ several monetary policies that create contraction or expansion of monetary policy. In order to overcome this, Bank Indonesia sells SBI for expansion, and BI repurchases SBI (SBI Repo). In other words, if banking liquidity is in surplus, BI will sell securities. Conversely, if there is excess demand for money, BI will buy back the securities. This securities sale and purchase transaction involves certain expenses. If BI sells SBIs, the burden of Open Market Operations (OMO) will be borne by BI. However, if OPT is conducted through foreign exchange intervention, its management depends on the coordination between BI and the government (Rahmad Riho Zeen et al., 2022).

Sharia Bank Indonesia Deposit Facilities

Cited from Bank Indonesia Circular Letter No. 11/8/DPM regarding FASBIS procedures in rupiah Sharia Bank Indonesia Deposit Facility serves as a short-term savings facility for Islamic financial institutions and Sharia business divisions at Bank Indonesia, functioning within the framework of Sharia monetary operations. FASBIS acts as a deposit instrument that enables banks to place their funds under the Sharia Standing Facilities provided by Bank Indonesia. These standing facilities are mechanisms established to support

Sharia-based monetary management, facilitating currency regulation through open market activities and the offering of liquidity services in accordance with Islamic legal principles. Bank Indonesia issued a complete regulation on FASBIS in circular letter No. 11/8/DPM Jakarta March 27, 2009. This letter contains the implementation procedures, sanctions and other matters related to this instrument and came into effect on April 1, 2009 (Syarifuddin & Sakti, 2021).

According to (Andarini, 2016) the provision of Bank Indonesia Sharia Deposit Facilities is a liquidity absorption instrument used during periods of economic boom and also to enhance capital efficiency in sharia banks. An increase in the number of Bank Indonesia Sharia Deposit Facilities will reduce economic growth, which in turn will lead to a decline in GDP. For this reason, Bank Indonesia consistently endeavours to maintain and fulfil banking liquidity requirements in a balanced and sustainable manner (Noviyanti, 2024).

Sharia Interbank Money Market

According to (Andarini, 2016) Islamic interbank money market is a process that facilitates lending money or funds among Islamic banks aiming to overcome the liquidity issues that arise within internal banking through a predetermined profit-sharing arrangement, expressed as a percentage. The money market is a necessity for Islamic banks to control liquidity efficiently (Siregar, 2020). Therefore, DSN fatwa No. 37/DSN-MUI/X/2012 was issued, regarding the interbank money market based on sharia principles, with the following considerations: *first*, sharia banks may experience liquidity shortages due to differences in the timing of fund receipts and investments, or excess liquidity due to funds that have been collected but cannot yet be distributed to other parties. *Second*, in order to improve the efficiency of fund management, banks that conduct business activities based on sharia principles require an interbank money market.

Economic Growth

According to (Dainy, Hasanah, Sophia, & Sari, 2025) Economic growth refers to the change in the level of economic activity over a given period, typically measured from one year to the next. This change serves as a crucial indicator to assess a country's development and progress. Adam Smith, who emphasized the importance of division of labour, capital accumulation, and free markets as drivers of growth. Subsequently, modern theories such as the Solow Growth Model explain the role of capital accumulation, population growth, and advancements in technology as the primary drivers of economic development. This model highlights the significance of investing in physical and human capital to improve productivity (Masliyah, Jamil, & Zuana, 2020).

Economic growth is also defined as the progress of activity in an economic, this process leads to the expansion of goods and services produced within society and an improvement in overall welfare from one period to the next. Such growth occurs as a result of increased capacity in the factors of production, both in terms of quantity and quality. One of the primary factors contributing to economic growth is investment (Andriansyah et al. 2022). Investment enables the addition of capital goods used in the production process, as well as supporting the development of more modern and efficient technology. In addition, population growth accompanied by a boost in the knowledge and abilities of the labour force is another crucial factor. With a more skilled and educated workforce, a country's productivity can be improved, which in turn contributes to overall economic growth (Priyanto, 2019).

The main indicator to see or measure economic growth is through Gross Domestic Product (GDP), where an increase in GDP indicates an increase in value-added income from all economic activities per capita (Dainy et al., 2025). Per capita income itself refers to the average income earned by individuals in society. GDP is the main measure in assessing how much a country's ability to produce economic output.

RESEARCH METHOD

This research employs a quantitative research method that relies on objective measurement and statistical analysis of the collected data samples (Subhaktiyasa, 2024). And to prove or test the hypothesis proposed in the research, using the VECM approach with the EViews 12 tool to assess both short-term and long-term relationships among variables. This method is to answer and prove the impact of Islamic monetary policy namely; Sharia Open Market Operation, Sharia Indonesia Bank Deposit Facilities and Sharia Interbank Money

Market on Indonesia's economic growth period 2020 – 2024. The following is the empirical model of this research:

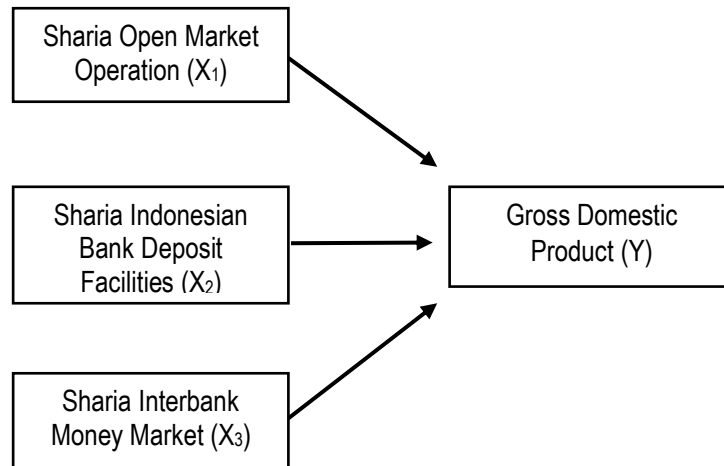


Figure 1. Research Framework

Based on the model presented, the independent variables comprising Sharia open Market Operation as X_1 , Sharia Indonesian Bank Deposit Facilities as X_2 , and Sharia Interbank Money Market as X_3 represent the Islamic monetary operations executed in Indonesia by Bank Indonesia, which include operational objectives for the monetary tool of Islamic open market operations. Additionally, the dependent variable economic growth, represented as Y , serves as the ultimate goal of the Islamic monetary policy executed in Indonesia by Bank Indonesia.

This study makes use of secondary data, specifically information acquired indirectly. It is a dataset of time series, which is a set of data used to observe a specific time span, namely, from 2020 to 2024. The data were collected from various sources, including online and print media articles, as well as journals, employing a purposive sampling method to obtain relevant information. The data sources consist of annual GDP (ADHK, base year 2010) data for the 2020–2024 period provided by official website of the Central Bureau of Statistics (www.bps.go.id), and monthly data on Sharia OPT, FASBIS, and PUAS for the 2020–2024 period obtained from SEKI-BI (www.bi.go.id) and the Financial Services Authority (www.ojk.go.id).

The Vector Error Correction Model (VECM) method which is managed using EViews 12 software. According to (Was'an, 2022) Vector Error Correction Model (VECM) is performed if there are variables that are stationary at first difference, contain unit root and are cointegrated. Vector Error Correction Model (VECM) can be used. Like the VAR model, the VECM model will have one equation for each variable (as the dependent variable). If the data in the VAR estimation method is stationary at the level, the VAR estimation approach is applicable. However, if the data in the VAR estimation technique is stationary at the First Difference, then the VECM estimation method is applied in this instance. Employing the VAR/VECM estimation model due to the time series data that illustrates economic variations and elucidates the influence of monetary policy on changes in the real sector through a mechanism that typically does not have an instantaneous effect, generally necessitating a specific time frame (lag). The VAR/MECM estimation model can address these questions, as it is among the most commonly utilized macro-econometric models to examine the issue of economic fluctuations.

RESULT AND DISCUSSION

1. Econometric Tests

a. Data Stationarity Test

Unit root testing is used to determine whether the data being studied is stationary or not. The method used to test stationarity is the ADF (Augmented Dickey-Fuller) test.

Table 1. Stationarity Test Results

Variable	Unit Root Test	
	Level	First Difference
	Prob	Prob
OPT Syariah	0.1074	0.0000
FASBIS	0.2302	0.0000
PUAS	0.0199	0.0000
PDB	0.7471	0.0001

With a confidence level of $\alpha = 5\%$, the table above shows that the probability values for all variables are greater than 5%, except for the PUAS variable, which is stationary at the level, while the OPT Syariah, FASBIS, and PDB variables are not stationary at the level. It is necessary to conduct a stationarity test on the first difference with a confidence level of $\alpha = 5\%$. Looking at the first difference table above, it can be seen that the probability value for all variables is less than 5%.

b. Lag Length Test

Table 2. Optimal Lag Test Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-2342.630	NA	6.54e+32	86.91222	87.05955	86.96904
1	-2276.134	120.6772	1.01e+32	85.04201	85.77867	85.32611
2	-2162.778	188.9266	2.77e+30	81.43624	82.76223	81.94762
3	-2055.555	162.8210	9.7e+28	78.05758	79.97290	78.79625
4	-1952.819	140.7861	4.11e+27	74.84515	77.34979	75.81109
5	-1878.735	90.54672	5.20e+26	72.69390	75.78787	73.88713

The Optimal Lag test for determining the Optimal Lag conducted in this study was based on the Akaike Information Criterion (AIC) value. The results of the Optimal Lag test can be seen in the table above, which shows that the Lag to be used in this study is the Optimal Lag of 5 lags.

In this study, the determination of the lag length was done by looking at the values of the Likelihood Ratio (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Information Criterion (SC), and Hannan Quin Criterion (HQ). The determination of the optimal lag using these information criteria was obtained by selecting the criteria with the smallest value or the most stars among the various lags proposed. Therefore, the author took lag 5 based on the smallest value in the Likelihood Ratio (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Information Criterion (SC), and Hannan Quin Criterion (HQ).

c. Stability of the VAR Model Test

For the VAR model to be considered stable, it is necessary to calculate the roots of the polynomial function. If the function falls within the unit circle, or its absolute value is < 1 , then the VAR model is considered stable.

Table 3. VAR Stability Test Results

Root	Modulus
0.913372 - 0.403146i	0.998386
0.913372 + 0.403146i	0.998386
0.933445 - 0.272117i	0.972300
0.933445 + 0.272117i	0.972300
-0.906454	0.906454
0.900046 - 0.025582i	0.900410
0.900046 + 0.025582i	0.900410
-0.426815 + 0.761100i	0.872608
-0.426815 - 0.761100i	0.872608
0.574798 - 0.554184i	0.798443
0.574798 + 0.554184i	0.798443

-690043 + 0.337405i	0.768116
-690043 - 0.337405i	0.768116
0.258809 + 0.705192i	0.751184
0.258809 - 0.705192i	0.751184
-0.006246 + 0.683642i	0.683671
-0.006246 - 0.683642i	0.683671
-0.375884 + 0.327914i	0.498815
-0.375884 - 0.327914i	0.498815
0.267361	0.267361

Based on the VAR Stability Test in the table above, the modulus values of all roots are less than 1 or smaller than 1 at lag 5. Thus, the model is stable at that lag. This condition indicates that the IRF and FEVD results are valid.

d. Cointegration Test

The cointegration test is used to determine the existence of cointegration between variables and to determine the method to be used next. If there is no cointegration, then the model used is VAR to determine the short-term relationship. Meanwhile, if there is cointegration, then the model used next is VECM. VECM can determine the long-term and short-term relationships between variables. The test in this study uses the Johansen Trace Statistics Test with a lag of 1-10. If the Trace Statistics value is greater than the critical value of 5%, then there is cointegration between variables.

Table 4. Cointegration Test Results

Hypothesized No. of CE(s)	Eigenvalue	Uji Trace Statistic		
		Trace Statistic	Critical Value (5%)	Prob.
None *	0.608221	88.13630	47.85613	0.0000
At most 1*	0.408482	38.47221	29.79707	0.0039
At most 2*	0.180044	10.64385	15.49471	0.2344
At most 3*	0.002320	0.123098	3.841465	0.7257
Hypothesized No. of CE(s)	Eigenvalue	Uji Maximum Eigenvalue		
		Max-eigen statistic	Critical Value (5%)	Prob.
None *	0.608221	49.66409	27.58434	0.0000
At most 1*	0.408482	27.82837	21.13162	0.0049
At most 2*	0.180482	10.52075	14.26460	0.1799
At most 3*	0.002320	0.123098	3.841465	0.7257

From the test results in the table 4 above, it is known that the Trace Statistic value > Critical Value at (None*). These results indicate that there is a cointegration equation in the long and short term. Thus, the next method used in this study is *vector error correction models* (VECM).

e. Granger Causality Test

This test is conducted to determine whether there is a unidirectional, bidirectional, or no relationship between exogenous variables and endogenous variables. If the probability value is > 0.05 or the significance level α is 5%, it can be concluded that there is no causality between the variables. However, if the probability value is < 0.05 or the significance level α is 5%, there is causality. The results of the Granger causality test are shown in the table below.

Table 5. Granger Causality Test Results

Null Hypothesis:	Obs	F Statistic	Prob.
OPT does not Granger Cause FASBIS	55	0.71615	0.6147
FASBIS does not Granger Cause OPT		3.15487	0.0161
PDB does not Granger Cause FASBIS	55	0.48873	0.7828
FASBIS does not Granger Cause PDB		5.48122	0.0005
PUAS does not Granger Cause FASBIS	55	3.01691	0.0199

FASBIS does not Granger Cause PUAS		0.38353	0.8574
PDB does not Granger Cause OPT	55	0.14129	0.9816
OPT does not Granger Cause PDB		3.70909	0.0069
PUAS does not Granger Cause OPT	55	6.02658	0.0002
OPT does not Granger Cause PUAS		0.55647	0.7326
PUAS does not Granger Cause PDB	55	0.68401	0.6380
PDB does not Granger Cause PUAS		0.60404	0.6971

Based on the Granger causality test results above, it can be seen that there are several variables with positive values, such as FASBIS on OPT (0.0161), FASBIS on GDP (0.0005), PUAS on FASBIS (0.0199), OPT on GDP (0.0069), and PUAS on OPT (0.0002), which are smaller than the significance level α 5%. However, the other variables tested do not have a causal relationship, as indicated by the probability values of each variable being greater than the error level α 5%.

f. VECM Model Estimation

Based on the results of the Cointegration Test, there are two cointegrated equations. This means that the VECM model is more appropriate for analysing the long-term and short-term effects of the variables of the Islamic open market operation, FASBIS, PUAS, and Gross Domestic Product (GDP). The VAR test is non-stationary at the level but stationary at the first difference level, indicating a theoretical relationship between variables. The VECM test results are considered significant or have a positive influence for both the long and short term when the calculated T value is greater than the specified T-table value of 5% or 0.05.

Table 6. Long-term VECM model estimation test results

Long Term			
Variable	Coefficient	Standard Error	T-statistic
D (PUAS (-1))	7.808559	4.13129	1.89010
D (FASBIS (-1))	4.661219	0.82688	5.63719
D (OPTS (-1))	-0.466906	0.06716	-6.95196
C	883.6245		

The results of the long-term equation in the table above show that the PUAS variable does not have a significant effect. Meanwhile, the FASBIS and OPTS variables have a significant effect on Gross Domestic Product (GDP) because the T-Statistic value is greater than the T-Table, which is 2.00324.

Table 7. Results of Short-Term VECM Model Estimation

Short Term			
Variable	Coefficient	Standard Error	T-statistic
CointEq1	-3.800005	0.00015	-0.25168
D (PDB (-1))	3.657237	0.17281	21.1630
D (PDB (-2))	-5.175028	0.64390	-8.03704
D (PDB (-3))	3.271491	0.94147	3.47488
D (PDB (-4))	-0.690109	0.63760	-1.08236
D (PDB (-5))	-0.077306	0.16938	-0.45641
D (PUAS (-1))	-0.000453	0.00172	-0.26299
D (PUAS (-2))	-0.000173	0.00209	-0.08293
D (PUAS (-3))	0.000563	0.00199	0.28340
D (PUAS (-4))	0.000961	0.00168	0.57047
D (PUAS (-5))	0.000635	0.00120	0.53017
D (FASBIS (-1))	-0.000125	0.00066	-0.18900
D (FASBIS (-2))	-0.000372	0.00063	-0.58568
D (FASBIS (-3))	-0.000460	0.00059	-0.77753
D (FASBIS (-4))	-0.000313	0.00047	-0.67126
D (FASBIS (-5))	-0.000190	0.00025	-0.77543
D (OPTS (-1))	-1.880005	5.80005	-0.32356
D (OPTS (-2))	-5.790006	4.70005	-0.12229
D (OPTS (-3))	6.4400006	3.80005	0.16987
D (OPTS (-4))	-3.520006	2.70005	-0.12863
D (OPTS (-5))	6.3800006	1.60005	0.39766

C	-0.697137	1.42610	-0.48884
R2 = 0.999998, Adj. R2 = 0.999997, F-statistic = 786745.2			

Based on the short-term estimation data from the VECM model in the table above. The coefficient value of the CointEq1 parameter (error correction coefficient) is -3.800005, with a T-Statistic value of -0.25168 and a standard error of $0.00015 < 0.05$, indicating a significant relationship between the short-term and long-term mechanisms.

The results of the short-term VECM estimation in this study show that the PUAS, FASBIS, and OPTS variables at all lags do not have a significant effect on GDP. Meanwhile, the GDP variable at lags 1, 2, and 3 has a significant effect with T-Statistics of ((-1) 21.1630), ((-2) -8.03704), and ((-3) 3.47488), which are greater than the T-Table value of 2.00324. Thus, it can be concluded that in the short term, the PUAS, FASBIS, and OPT variables do not have a significant effect on GDP. This identifies that the dynamics of economic growth in the short term are more influenced by internal GDP factors than by the three monetary instruments studied.

g. Analysis Impulse Response Function (IRF)

The analysis of IRF estimates are used to determine how a variable reacts to shocks caused by other variables and how long the effects of those shocks last after they occur. In the graph below, the horizontal axis represents time, with one period equal to one month. This study uses a period of 60 periods.

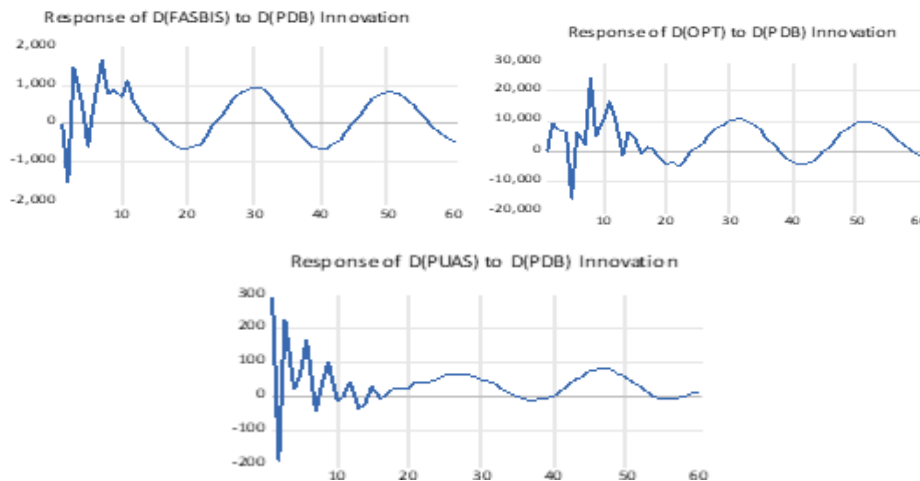


Figure 3. the IRF Analysis Results

The response of GDP when FASBIS experiences a shock shows a negative trend. The shock experienced by FASBIS is responded to by GDP for the first 10 periods, after which it experiences a stable fluctuation trend. The response of GDP when OPT Syariah experienced a shock showed a positive trend in the first period, then declined in the fourth and fifth periods. The shock that occurred in OPT Syariah was responded to by GDP until the first 18 periods, after which it experienced a stable fluctuation trend. The response of GDP when PUAS experiences a shock shows a positive trend in the first period and then declines in the second period. The shock that occurs in PUAS is responded to by GDP for the first 15 periods and after that experiences a stable fluctuation trend.

h. Analysis Variance Decomposition (VD)

Forecast Error Variance Decomposition (FEVD) analysis, also known as variance decomposition testing, is used to determine whether the variance of a variable is caused by the variable itself or by contributions from other factors. In VECM modelling, the results of the FEDV test can be seen in the table below, which shows the contribution of Sharia Open Market Operations, Bank Indonesia Sharia Deposit Facilities, and the Sharia Interbank Money Market to Gross Domestic Product.

Table 8. Variance Decomposition Analysis (VD)

Period	S.E.	PDB	PUAS	FASBIS	OPTS
1	9.299396	100.0000	0.000000	0.000000	0.000000
2	44.40497	99.41290	0.051762	0.535050	0.000286
3	129.1843	98.28258	0.133216	1.582653	0.001555
4	290.6900	96.94516	0.217963	2.824123	0.012750
5	553.7872	95.50611	0.300598	4.161325	0.031970
6	935.0972	94.01371	0.374469	5.551648	0.060173
7	1437.529	92.50487	0.441324	6.959112	0.094697
8	2046.593	91.00150	0.500016	8.365646	0.132837
9	2729.887	89.51575	0.545557	9.767580	0.171115
10	3439.891	88.05309	0.575835	11.16352	0.207547

As can be seen in the table above, the largest movement in GDP was caused by internal factors, namely factors directly related to Gross Domestic Product itself, with a downward trend in value for each period, reaching 88.05% in the tenth period. The second-largest influence is the Bank Indonesia Syariah Deposit Facility, accounting for 11.16%, followed by the Syariah Interbank Money Market at 0.57%, and finally the Syariah Open Market Operations at 0.20%, with its magnitude increasing in each period.

2. Discussion

The effect of Sharia Open Market Operation on GDP

Based on the interpretation of the VECM estimation results, it can be observed that in the short run, Sharia Open Market Operation instruments at all lags do not have a significant effect on Gross Domestic Product (GDP), as the t-statistic values are smaller than the critical t-table value. The short-run findings of this study are consistent with several previous research by (Nur Fitri Eka Asbarini et al., 2022) reported that in the short term, Sharia Open Market Operations do not exert a significant influence on economic growth. However, in the long run, Sharia Open Market Operations exhibit a significant and negative effect on GDP, as indicated by the t-statistic value exceeding the critical t-table value ($-6.95196 > 2.00324$). This result is in line with the findings of (Madani & Widiastuti, 2021), who reported that SBIS one of the instruments of Sharia Open Market Operations has a negative impact on Gross Domestic Product. In addition, this finding is consistent with the study by (Nur Fitri Eka Asbarini et al., 2022), which identified a significant long-run relationship between Sharia Open Market Operations and economic growth.

The effect of Bank Indonesia Sharia Deposit Facility on GDP

Based on the VECM estimation results, it is also found that in the short run, the Bank Indonesia Sharia Deposit Facility does not have a significant effect on Gross Domestic Product across all lags, as the t-statistic values are smaller than the t-table value. This result is not consistent with the findings of (Winarto & Beik, 2024), who reported that the Bank Indonesia Sharia Deposit Facility affects economic growth in the short term. In contrast, in the long run, the Bank Indonesia Sharia Deposit Facility has a significant and positive effect on GDP, as indicated by a t-statistic value greater than the critical t-table value ($5.63719 > 2.00324$). This finding is not consistent with several previous studies, including (Wahid et al., 2020), who found that in the long run the Bank Indonesia Sharia Deposit Facility does not affect economic growth. Similarly, (Marpaung et al., 2024) reported that the Bank Indonesia Sharia Deposit Facility does not have a significant long-run relationship with economic growth.

The effect of Sharia Interbank Money Market on GDP

Based on the interpretation of the VECM estimation results, it can be observed that in the short run, the Sharia Interbank Money Market does not have a significant effect on Gross Domestic Product across all lags, as the t-statistic values are smaller than the critical t-table value. This result is consistent with the findings of (Octaviani & Al Arif, 2018), who argued that the Islamic interbank money market variable has not yet made a meaningful contribution to economic growth. Meanwhile, in the long run, the Sharia Interbank Money Market also does not exhibit a significant positive effect on GDP, as indicated by the t-statistic value being smaller than the t-table value ($1.89010 < 2.00324$). This result is not consistent with the findings of (Winarto & Beik,

2024), who concluded that the Islamic interbank money market significantly affects economic growth in both the short and long run. In addition, this finding contradicts the study by (Marpaung et al., 2024), which identified a significant long-run relationship between the Islamic interbank money market and economic growth.

CONCLUSION

Based on the discussion and results it can be concluded that, in the short term, Sharia Open Market Operations have no significant effect on Gross Domestic Product. Islamic monetary instruments in Indonesia have varying effects on economic growth. The VECM analysis shows that Sharia Open Market Operations (OPTS), Bank Indonesia Sharia Deposit Facility (FASBIS), and the Sharia Interbank Money Market (PUAS) do not significantly influence GDP in the short term. However, in the long term, OPTS has a significant negative effect on economic growth, while FASBIS has a significant positive effect. PUAS does not show a significant impact on GDP. These findings indicate that Islamic monetary policy is more effective over the long term and plays an important role in supporting economic stability and sustainable growth in Indonesia. However, in the long term, Sharia Open Market Operations have a significant and negative effect on Gross Domestic Product. In the short term, Bank Indonesia's Sharia Deposit Facility has no significant effect on Gross Domestic Product. However, in the long term, Bank Indonesia's Sharia Deposit Facility has a significant and positive effect on Gross Domestic Product. Meanwhile, in the short term, the Islamic Interbank Money Market has no significant effect on Gross Domestic Product, and in the long term, the Islamic Interbank Money Market has no effect on Gross Domestic Product.

This study is limited to the 2020–2024 period and focuses only on three Islamic monetary instruments, namely OPTS, FASBIS, and PUAS, within Indonesia's dual financial system. In addition, the use of secondary time-series data and the VECM approach may not fully capture broader macroeconomic factors, structural changes, and external shocks affecting economic growth during the pandemic and post-pandemic periods. Future studies are recommended to extend the observation period and incorporate additional macroeconomic variables, such as inflation, exchange rates, and Islamic banking financing, to provide a more comprehensive analysis. Further research may also apply alternative econometric approaches or comparative cross-country studies to strengthen the understanding of the effectiveness of Islamic monetary policy in promoting sustainable economic growth.

REFERENCES

- Andarini, M. A. (2016). Pengaruh SBIS dan PUAS Terhadap Tingkat Inflasi Melalui Operasi Moneter Syariah Periode 2011-2015. *Jurnal Ekonomi Syariah Teori Dan Terapan*, 3(6), 474–489. <https://doi.org/10.20473/vol3iss2016pp474>
- Andiansyah, F., Hanafi, S. M., Haryono, S., & Wau, T. (2022). Pengaruh Instrumen Keuangan Syariah Terhadap Pertumbuhan Ekonomi Indonesia. *Al-Masraf: Jurnal Lembaga Keuangan Dan Perbankan*, 7(1), 69. <https://doi.org/10.15548/al-masraf.v7i1.288>
- Aprilianto, F. (2020). An analysis of financing scheme effect on non-performing financing asset at Islamic banks in Indonesia. *Falah: Jurnal Ekonomi Syariah*, 5(1), 25-32. <https://doi.org/10.22219/jes.v5i1.11400>
- Dainy, O., Hasanah, I., Sopia, S., & Sari, R. N. (2025). Pengaruh Implementasi Kebijakan Moneter Syariah Terhadap Pertumbuhan Ekonomi di Indonesia Periode 2020-2023. *Jurnal Ekonomi Dan Keuangan*, 3(1), 126. retrieved from <https://elibrary.ru/item.asp?id=82225258>
- Febriandika, N. R., Fahira, F. F., & Hakim, F. K. (2026). The merger of Islamic banks in Indonesia: Do financial ratios and inflation matter?. *Falah: Jurnal Ekonomi Syariah*, 11(1), 1-21. <https://doi.org/10.22219/jes.v11i1.43485>
- Kaila Zulfa Khoirurizki, Putri Karina Sabila, Zakia Khoirunisa, & M. Taufiq Abadi. (2024). Perkembangan Ekonomi di Indonesia Melalui Kebijakan Moneter Syariah. *Jurnal Ekonomi Bisnis Dan Manajemen*, 2(1), 136–145. <https://doi.org/10.59024/jise.v2i1.555>
- Madani, A., & Widiastuti, T. (2021). the Impact of Islamic Monetary Operations and Aggregate Financing on Economic Growth in Indonesia (2010-2020). *Jurnal Ekonomi Dan Bisnis Islam (Journal of Islamic Economics and Business)*, 7(2), 185. <https://doi.org/10.20473/jebis.v7i2.26085>
- Mamad, M. (2020). Pengaruh office channeling dan dana pihak ketiga terhadap laba dengan pembiayaan sebagai variabel intervening pada Perbankan Syariah di Indonesia. *J-EBIS (Jurnal Ekonomi Dan Bisnis*

- Islam), 187–202. <https://doi.org/10.32505/j-ebis.v5i2.1683>
- Marpaung, T. A., Imsar, & Tambunan, K. (2024). The Impact of Islamic Monetary Policy on Indonesia's Economic Growth. *Journal of Islamic Economics and Finance Studies*, 4(2), 309–331. <https://doi.org/10.47700/jiefes.v4i2.8034>
- Masliyah, L., Jamil, A. S., & Zuana, M. M. M. (2020). Pengaruh Net Profit Margin (NPM), Earning Per Share (EPS), Produk Domestik Bruto (PDB) Dan Inflasi terhadap Harga Saham Perusahaan Yang Terdaftar di Jakarta Islamic Index (JII) Tahun 2014-2018. *Iqtishodia: Jurnal Ekonomi Syariah*, 5(2), 61–67. <https://doi.org/10.35897/iqtishodia.v5i2.475>
- Mawi, M. Y. T. (2017). MANAJEMEN PASAR UANG ANTAR BANK SYARIAH (PUAS) DI INDONESIA. *Change Agent For Management Journal MANAJEMEN*, 11(1), 92–105.
- Mubarok, F., Wibowo, M., Pradana, H. D., & Yaacob, Z. (2026). The Influence of Macroeconomic Shocks, Operational Efficiency, and Financing Risk: An Empirical Study of NPF in Indonesian Islamic Banks. *Falah: Jurnal Ekonomi Syariah*, 11(1), 22-42. <https://doi.org/10.22219/jes.v11i1.43291>
- Nasir, M. D. A., & Khomariyah, N. (2020). Analisis Faktor-Faktor yang Mempengaruhi Pembiayaan Bermasalah Pada Bank Syariah di Indonesia dengan Pendekatan Error Correction Model (ECM). *Iqtishodia: Jurnal Ekonomi Syariah*, 5(2), 47–53. <https://doi.org/10.35897/iqtishodia.v5i2.432>
- Noviyanti, R. (2024). Suitability of Islamic Consumption Theory with the Concept of Decluttering as a Preventing Factor for Impulsive Buying Behavior. *Iqtishodia: Jurnal Ekonomi Syariah*, 9(1), 32–40. <https://doi.org/10.35897/iqtishodia.v9i1.1440>
- Nur Fitri Eka Asbarini, Abdul Chalel Rahman, & Maya Ulyani. (2022). Analisis Pengaruh Operasi Moneter Konvensional dan Operasi Moneter Syariah Terhadap Produk Domestik Bruto Di Indonesia. *Profit: Jurnal Manajemen, Bisnis Dan Akuntansi*, 1(4), 236–261. <https://doi.org/10.58192/profit.v1i4.557>
- Octaviani, I., & Al Arif, M. N. R. (2018). Islamic Monetary Policy and Its Impact on Real Sector. *Trikonomika*, 17(2), 43–48. <https://doi.org/10.23969/trikononika.v17i2.1144>
- Pane, S. G., Fernanda, R. L., Althaaf, S. N., Waruwu, T. J. P., & Silalahi, M. S. (2024). Analisis Pengaruh Kebijakan Moneter Terhadap Pertumbuhan Ekonomi di Indonesia. *MANTAP: Journal of Management Accounting, Tax and Production*, 2(2), 751–757. <https://doi.org/10.57235/mantap.v2i2.3345>
- Prasetya, E. W. O., Prijanto, W. J., & Prasetyanto, P. K. (2021). Dinamika Instrumen Operasi Moneter Syariah Dan Bi Rate Terhadap Pertumbuhan Ekonomi Indonesia Tahun 2014-2019. *DINAMIC: Directory Journal of Economic*, 3, 554–571.
- Prijanto, W. J. (2019). Dinamika Instrumen Operasi Moneter Syariah dan BI Rate terhadap pertumbuhan Ekonomi Indonesia Tahun 2014-2019. *Journal Ekonomi*, 3(2), 554-571.
- Rahayu, E. T., Zaini, M., & Madura, U. T. (2024). Analisis Kestabilan Ekonomi Indonesia Dengan Pendekatan Syariah Dalam Sistem Keuangan. *Jurnal Media Akademik (JMA)*, 2(6), 18.
- Rahmad Riho Zeen, Ihsan Alfi Lubis, Fitra Ilham Ramadhan, Hilman Hanif, & Khairina tambunan. (2022). Analisis Pengaruh Kebijakan Moneter Syariah Terhadap Perkembangan Ekonomi di Indonesia. *CEMERLANG : Jurnal Manajemen Dan Ekonomi Bisnis*, 2(4), 259–269. <https://doi.org/10.55606/cemerlang.v2i4.624>
- Siregar, E. S. (2020). Pengaruh Penempatan Dana Pada FASBIS dan Penempatan Dana Pada bank lain Terhadap Peningkatan Laba PT. Bank Sumut Cabang Syariah Padang Sidempuan. *Jurnal Ekonomi Syariah*, 1(1), 56–68. <https://doi.org/10.31857/s0320930x20040088>
- Subhaktiyasa, P. G. (2024). Menentukan Populasi dan Sampel : Pendekatan Metodologi Penelitian Kuantitatif dan Kualitatif. *Jurnal Ilmiah Profesi Pendidikan*, 9(4), 2721–2731.
- Syarifuddin, F., & Sakti, A. (2021). *Instrumen Moneter Islam* (1st ed.; M. Ibrahim, ed.). Rajawali Pers.
- Wahid, A. N., Jamel, S. Bin, Noviarita, H., & Anggraini, E. (2020). Assessing Sharia Monetary Instruments Against Country Economic Growth. *Jejak*, 13(2), 307–318. <https://doi.org/10.15294/jejak.v13i2.23754>
- Was'an, G. H. (2022). Pendekatan Analisis Vector Error Correction Model (VECM) Dalam Hubungan Kondisi Makro Ekonomi Dengan Non Performing Financing Berdasarkan Pengelompokan Modal Inti Bank Umum Syariah di Indonesia. *Jurnal Neraca Peradaban*, 2(2), 129–136. <https://doi.org/10.55182/jnp.v2i2.180>
- Winarto, F. H., & Beik, I. S. (2024). The effect of Sharia monetary policy instruments and Islamic bank financing on economic growth and inflation. *Jurnal Ekonomi & Keuangan Islam*, 10(1), 72–89. <https://doi.org/10.20885/jeki.vol10.iss1.art6>
- Yudi Setiawan, R., & Karsinah, K. (2018). Mekanisme Transmisi Kebijakan Moneter dalam Mempengaruhi Inflasi dan Pertumbuhan Ekonomi di Indonesia. *Economics Development Analysis Journal*, 5(4), 460–473. <https://doi.org/10.15294/edaj.v5i4.22183>